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EXAMINER	
LAMB, CODY W	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/595,023	HAINBERGER ET AL.	
	Examiner	**Art Unit**	
	Cody W. Lamb	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _20 December 2005_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-30_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-7,13,16,19 and 21-26_ is/are rejected.

7)☒ Claim(s) _8-12,14,15,17,18,20 and 27-30_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _20 December 2005_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _See Continuation Sheet_.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :03/01/2007 and 10/04/2006 and 12/20/2005.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 21 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Benjamin Eggleton et al. (US Patent No. 7,139,478), referred herein as Eggleton.

Regarding claim 21, Eggleton teaches an optical regenerator comprising: an optical amplifier at an input of the regenerator (figure 1b item 35 and column 3, lines 32-35 teach an optical amplifier at the input of a regenerator system); an all-optical nonlinear device to provide a nonlinear transfer function between optical input power of an optical signal after the optical amplifier and optical output power of an optical signal after the nonlinear device (figure 1b item 40 and column 3, lines 32-35 teach a non-linear optical medium that inherently, due to its nonlinear nature, possesses a nonlinear transfer function between the input light from the amplifier and the output light); a monitoring device to monitor the optical signal after the optical amplifier and output a monitoring signal (figure 1b illustrates a device that receives a tapped signal 48, that is

after both the amplifier and the nonlinear device, and analyzes, or monitors, the signal and the pulse broadening in the spectrum); and a control unit to receive the monitoring signal and control the optical amplifier based on the monitoring signal (column 5, lines 50-67 teach controlling the optical amplifier based on the monitoring signal received in a controlling feedback loop).

Regarding claim 22, Eggleton teaches a method of controlling an optical regenerator which comprises an all-optical nonlinear device to provide a nonlinear transfer function between optical input power of an optical signal before the nonlinear device and optical output power of an optical signal after the nonlinear device (figure 1b item 40 and column 3, lines 32-35 teach a non-linear optical medium that inherently, due to its nonlinear nature, possesses a nonlinear transfer function between the input light from the amplifier and the output light), comprising: amplifying the optical signal before the nonlinear device by an optical amplifier (figure 1b item 35 and column 3, lines 32-35 teach an optical amplifier at the input of a regenerator system); monitoring an amplified optical signal to generate a monitoring signal (figure 1b illustrates a device that receives a tapped signal 48, that is after both the amplifier and the nonlinear device, and analyzes, or monitors, the signal and the pulse broadening in the spectrum); and controlling the optical amplifier based on the monitoring signal (column 5, lines 50-67 teach controlling the optical amplifier based on the monitoring signal received in a controlling feedback loop).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eggleton in view of Yasushi Sugaya et al. (US Patent No. 6,055,092), referred herein as Sugaya.

Regarding claim 1, Eggleton teaches an optical regenerator comprising: an optical amplifier at an input of the regenerator (figure 1b item 35 and column 3, lines 32-35 teach an optical amplifier at the input of a regenerator system); an all-optical nonlinear device to provide a nonlinear transfer function between optical input power of an optical signal after the optical amplifier and optical output power of an optical signal after the nonlinear device (figure 1b item 40 and column 3, lines 32-35 teach a non-linear optical medium that inherently, due to its nonlinear nature, possesses a nonlinear transfer function between the input light from the amplifier and the output light); an adjusting device to adjust the optical output power to a level of launch power from the regenerator (figure 1b illustrates a control system that outputs a signal 48 to the amplifier and controls the input, and consequently the output power since the output power is based on the input power and transfer function of the nonlinear medium); a

monitoring device to monitor an optical signal after the adjusting device and output a monitoring signal (figure 1b illustrates a device that receives a tapped signal 48 and analyzes, or monitors, the signal and the pulse broadening in the spectrum); and a control unit to receive the monitoring signal and control the optical amplifier based on the monitoring signal and the adjusting device based on the monitoring signal (column 5, lines 50-67 teach controlling the optical amplifier based on the monitoring signal received in a controlling feedback loop). However, Eggleton does not teach an adjusting device to adjust the optical output power to a level of launch power from the regenerator or a first monitoring device to monitor the optical signal after the optical amplifier and output a first monitoring signal. It is known in the art to monitor input signals to a system and output these monitoring signals to an adjusting device. For example, Sugaya teaches a system wherein an input signal to a system is monitored by a first monitoring device and then a monitoring signal is output (figure 1, item 3_1 and column 5, lines 31-34 teach a first splitter for splitting the initial signal, and then figure 1, items 6_1 and 9_1 teach an adjusting device for adjusting, via amplification, the level of the signal prior to inputting it into a system). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the system of Eggleton with the first monitoring and adjusting device of Sugaya for monitoring the signal to perform automatic gain control and output a signal with a power that can be maintained at a constant value (column 5, lines 40-45 teach this advantage).

Regarding claim 2, Eggleton and Sugaya teach the limitations of claim 1. Eggleton further teaches an optical regenerator comprising: an optical coupler to tap a part of the optical signal after the adjusting device to provide the second monitoring device with the tapped optical signal (column 6, lines 32-53 teach using a tap to couple out the signal for monitoring). However, Eggleton does not teach a first optical coupler to tap a part of the optical signal after the optical amplifier to provide the first monitoring device with the tapped optical signal. Sugaya teaches a first optical couple to tap a part of the optical signal to provide the first monitoring device with the tapped optical signal (figure 1, item 31 and column 5, lines 31-46 teach a beamsplitter for coupling out some of the signal and passing it into a monitoring circuit for performing an adjustment). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further include Sugaya's teaching of an optical tap coupler for extracting part of a signal in order to obtain a sample of the signal for a control system that performs automatic gain control and outputs a signal with a power that can be maintained at a constant value (column 5, lines 40-45 teach this advantage).

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eggleton and Sugaya as applied to claim 1 above, and further in view of Jurgen Otterbach et al. (US Patent No. 5,959,766), referred herein as Otterbach.

Regarding claim 3, Eggleton and Sugaya teach the limitations of claim 1. However, they do not teach an optical regenerator wherein the adjusting device includes an optical amplifier. It is known in the art to use an optical amplifier for

adjustment in an optical regenerator system. For example, Otterbach teaches a system wherein an adjusting part of a regenerator utilizes an optical amplifier (column 3, lines 21-45 teach an optical amplifier for adjusting a signal in a regenerator system). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teachings of Eggleton and Sugaya with the amplifier of Otterbach for creating a gain for the output signals that go through the regenerator (column 3, lines 33-42 teach this advantage).

Regarding claim 4, Eggleton and Sugaya teach the limitations of claim 1. However, they do not teach an optical regenerator wherein the adjusting device includes a variable attenuator. It is known in the art to include variable optical attenuators in an optical regeneration system. For example, Otterbach teaches a system wherein an adjusting part of a regenerator utilizes a variable optical attenuator (column 3, lines 21-45 teach the attenuator for adjusting the signal in a regenerator system). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teachings of Eggleton and Sugaya with the attenuator of Otterbach for compensating amplification adjustments that depend on wavelengths in a multi-wavelength regenerator system (column 3, lines 42-45 teach this advantage).

6. Claims 5, 6, 13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eggleton and Sugaya, in view of Hideaki Tsushima et al. (US Patent No. 6,731,874), referred herein as Tsushima.

Regarding claim 5, Eggleton and Sugaya teach the limitations of claim 1. However, they do not teach an optical regenerator wherein the control unit communicates with one of another optical regenerator and a receiver via an optical supervisory channel. It is well-known in the art to use supervisory channels for communication between regenerators. For example, Tsushima teaches an embodiment wherein a supervisory channel is used for regenerators (column 13, lines 32-39 teach a supervisory channel for use with regenerators). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teachings of Eggleton and Sugaya with the supervisory channels of Tsushima for the predictable result of dedicating a channel to control the regenerators so that there is either no crosstalk, or at least minimal crosstalk, between signals controlling the regenerators and data signals in the network.

Regarding claim 6, Eggleton, Sugaya and Tsushima teach the limitations of claim 5. Sugaya further teaches an optical regenerator wherein the first monitoring device includes a photodiode to measure the optical input power of the optical signal (column 5, lines 31-34 teach a photodiode for detecting an input optical signal before it enters a system). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further include Sugaya's teaching of monitoring an input signal with a photodiode in order to use a photodiode, a well-known and readily available component, for a control system that performs automatic gain control and outputs a signal with a power that can be maintained at a constant value (column 5, lines 40-45 teach this advantage).

Regarding claim 13, Eggleton, Sugaya and Tsushima teach the limitations of claim 5. Eggleton further teaches a monitoring device for monitoring signal quality (figure 1b illustrates a device that receives a tapped signal 48 and analyzes, or monitors, the signal and the pulse broadening in the spectrum). However, Eggleton does not teach an optical regenerator wherein the first monitoring device includes a signal quality monitor to monitor a signal quality of the optical signal after the optical amplifier. It is known in the art to monitor input signals to a system and output these monitoring signals to an adjusting device. For example, Sugaya teaches a system wherein an input signal to a system is monitored by a first monitoring device and then a monitoring signal is output (figure 1, item 3_1 and column 5, lines 31-34 teach a first splitter for splitting the initial signal, and then figure 1, items 6_1 and 9_1 teach an adjusting device for adjusting, via amplification, the level of the signal prior to inputting it into a system). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the system of Eggleton with the first monitoring and adjusting device of Sugaya for monitoring the signal to perform automatic gain control and output a signal with a power that can be maintained at a constant value (column 5, lines 40-45 teach this advantage).

Regarding claim 16, Eggleton, Sugaya and Tsushima teach the limitations of claim 5. Eggleton further teaches an optical regenerator wherein the second monitoring device includes a signal quality monitor to monitor a signal quality of the optical signal after the adjusting device (column 4, lines 66-67 and column 5, lines 1-13 teach

observing the central frequencies, broadening, and shapes of the output of the regenerator, all of which are indicators of quality).

7. Claims 7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eggleton, Sugaya and Tsushima, in view of Marvin Young et al. (US Patent Application Publication No. 2003/0231886), referred herein as Young.

Regarding claim 7, Eggleton, Sugaya and Tsushima teach the limitations of claim 6, that is to say, they teach an optical regenerator according to claim 6. Eggleton further teaches an optical fiber transmission system comprising an optical transmitter (column 3, lines 43-58 teach a signal input into an optical system, therefore a transmitter for creating the propagating signal is inherent), an optical receiver (figure 1b, item 32 illustrates a receiver), an optical fiber to connect the transmitter with the receiver (column 3, lines 51-53 teach a communications fiber through which the signal propagates), and at least one optical regenerator according to claim 6, wherein the control unit controls the optical amplifier using a signal to adjust an optical input power to the nonlinear device to a preset value (column 3, lines 44-47 teach operating the amplifier such that the input power to the nonlinear regenerator is set to a constant, fixed power). However, Eggleton does not teach the signal as being obtained from a photodiode. Sugaya further teaches an optical regenerator wherein the first monitoring device includes a photodiode to measure the optical input power of the optical signal (column 5, lines 31-34 teach a photodiode for detecting an input optical signal before it enters a system). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to further include Sugaya's teaching of

monitoring an input signal with a photodiode in order to use a photodiode, a well-known and readily available component, for a control system that performs automatic gain control and outputs a signal with a power that can be maintained at a constant value (column 5, lines 40-45 teach this advantage). However, Eggleton, Sugaya and Tsushima doe not teach a plurality of optical amplifiers along the optical fiber to compensate absorption losses of a signal light passing through the optical fiber. It is known in the art to use a plurality of optical amplifiers along an optical fiber to compensate absorption losses of a signal passing through the fiber. For example, Young teaches a system that includes a plurality of amplifiers between a transmitter and receiver (paragraph 9 teaches a plurality of amplifiers in regenerator systems between the transmitter and receiver). Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teachings of Eggleton, Sugaya and Tsushima with the multiple amplifiers of Young for the predictable result of amplifying a signal continuously along a fiber to compensate for attenuation due to natural, unavoidable losses in the fiber.

Regarding claim 19, Eggleton, Sugaya and Tsushima teach the limitations of claim 16, that is to say, they teach an optical regenerator in a network according to claim 16. Eggleton further teaches an optical fiber transmission system comprising an optical transmitter (column 3, lines 43-58 teach a signal input into an optical system, therefore a transmitter for creating the propagating signal is inherent), an optical receiver (figure 1b, item 32 illustrates a receiver), an optical fiber to connect the transmitter with the receiver (column 3, lines 51-53 teach a communications fiber

through which the signal propagates), and at least one optical regenerator according to claim 16, wherein the control unit controls the optical amplifier to adjust an optical input power to the nonlinear device using a signal from the signal quality monitor in the second monitoring device of the same regenerator (column 5, lines 50-67 teach controlling the optical amplifier based on the monitoring signal received in a controlling feedback loop). However, Eggleton, Sugaya and Tsushima do not teach a plurality of optical amplifiers along the optical fiber to compensate absorption losses of a signal light passing through the optical fiber. It is known in the art to use a plurality of optical amplifiers along an optical fiber to compensate absorption losses of a signal passing through the fiber. For example, Young teaches a system that includes a plurality of amplifiers between a transmitter and receiver (paragraph 9 teaches a plurality of amplifiers in regenerator systems between the transmitter and receiver). Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teachings of Eggleton, Sugaya and Tsushima with the multiple amplifiers of Young for the predictable result of amplifying a signal continuously along a fiber to compensate for attenuation due to natural, unavoidable losses in the fiber.

8. Claims 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eggleton and Sugaya in view of Andrew Bonthron et al. (US Patent No. 6,738,173), referred herein as Bonthron.

Regarding claim 23, Eggleton teaches the limitations of claim 22. However, Eggleton does not teach a method wherein a target value of the optical input power of

the optical signal is taken before the nonlinear device. It is known in the art to monitor input signals to a system and output these monitoring signals to an adjusting device. For example, Sugaya teaches a system wherein an input signal to a system is monitored by a first monitoring device and then a monitoring signal is output (figure 1, item 3_1 and column 5, lines 31-34 teach a first splitter for splitting the initial signal, and then figure 1, items 6_1 and 9_1 teach an adjusting device for adjusting, via amplification, the level of the signal prior to inputting it into a system). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the system of Eggleton with the first monitoring and adjusting device of Sugaya for monitoring the signal to perform automatic gain control and output a signal with a power that can be maintained at a constant value (column 5, lines 40-45 teach this advantage). However, Eggleton and Sugaya do not teach an embodiment wherein a target value of the optical input power of the optical signal is preset at a time of installation of the regenerator in an optical fiber transmission system, by adjusting the optical input power such that a bit error rate at a receiver in the optical fiber transmission system is minimized and storing an adjusted value as the target value. It is well-known in the art to use a minimum bit error rate as the criteria for choosing the operating parameters of a regeneration system. For example, Bonthron teaches providing a minimal bit error rate in a system with a regenerator (column 1, lines 53-67 and column 2, lines 1-5 teach minimizing the bit error rate in a system that includes regenerators). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Eggleton with

the minimal bit error rate of Bonthron for the predictable result of minimizing the errors at the receiver, where the final data is read.

Regarding claim 24, Eggleton, Sugaya and Bonthron teach the limitations of claim 23. The combination of Eggleton, Sugaya and Bonthron implies a method wherein a procedure of setting the target value is performed in forward direction starting from a regenerator closest to a transmitter in the reconfigurable optical network since there is only one regenerator taught by Eggleton (figure 1a illustrates an embodiment wherein there is only a single regenerating apparatus between the transmitter and the receiver).

Regarding claim 25, Eggleton teaches the limitations of claim 22. However, Eggleton does not teach a method wherein a target value of the optical input power of the optical signal is taken before the nonlinear device. It is known in the art to monitor input signals to a system and output these monitoring signals to an adjusting device. For example, Sugaya teaches a system wherein an input signal to a system is monitored by a first monitoring device and then a monitoring signal is output (figure 1, item 3_1 and column 5, lines 31-34 teach a first splitter for splitting the initial signal, and then figure 1, items 6_1 and 9_1 teach an adjusting device for adjusting, via amplification, the level of the signal prior to inputting it into a system). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the system of Eggleton with the first monitoring and adjusting device of Sugaya for monitoring the signal to perform automatic gain control and output a signal with a power that can be maintained at a constant value (column 5, lines 40-45 teach this

advantage). However, Eggleton and Sugaya do not teach a method wherein a target value of the optical input power of the optical signal is preset at a time of installation of the regenerator in an optical fiber transmission system, by adjusting the optical input power such that a bit error rate before a nonlinear device in a subsequent regenerator or at a receiver in case of the last regenerator in the optical fiber transmission system is minimized and storing an adjusted value as the target value. Eggleton does, however, teach all of this being done in the regenerator next to the receiver (figures 1a and 1b illustrate a receiver immediately following the regenerator system, with no other regenerator in between). It is well-known in the art to use a minimum bit error rate as the criteria for choosing the operating parameters of a regeneration system. For example, Bonthron teaches providing a minimal bit error rate in a system with a regenerator (column 1, lines 53-67 and column 2, lines 1-5 teach minimizing the bit error rate in a system that includes regenerators). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine the teaching of Eggleton with the minimal bit error rate of Bonthron for the predictable result of minimizing the errors at the receiver, where the final data is read.

Regarding claim 26, Eggleton, Sugaya and Bonthron teach the limitations of claim 25. Eggleton further teaches a method wherein a procedure of setting the target value is performed in forward direction starting from a regenerator closest to a transmitter in the optical fiber transmission system (figure 1a illustrates a single regenerator between, and adjacent to, both the transmitter and receiver).

Allowable Subject Matter

9. Claims 8-12, 14, 15, 17, 18, 20 and 27-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Regarding claim 8, Eggleton, Sugaya, Tsushima and Young teach the limitations of claim 7. However, they do not teach using a supervisory channel for communicating from the receiver to the regenerator and adjusting the input power of the regenerator to minimize the bit error rate. This particular embodiment goes beyond ordinary skill in the art and would not be obvious over any references found.

11. Regarding claim 9, Eggleton, Sugaya, Tsushima and Young teach the limitations of claim 7. However, they do not teach adjusting the input power from the photodiode detection such that the regenerator is adjusted so that a bit error rate is minimized at the receiver and communicated from the regenerator closest to the transmitter. This particular embodiment goes beyond ordinary skill in the art and would not be obvious over any references found.

12. Regarding claim 10, and claims 11 and 12 by their dependency, Eggleton, Sugaya and Tsushima teach the limitations of claim 6. However, they do not teach a network with reconfigurable nodes and a plurality of amplifiers with a regenerator unit and a network control that utilizes a supervisory channel to communicate between the different components. This particular embodiment goes beyond ordinary skill in the art and would not be obvious over any references found.

13. Regarding claim 14, Eggleton, Sugaya and Tsushima teach the limitations of claim 13. However, they do not teach a feedback signal from a receiver or later regenerator that uses a supervisory signal to transmit back its information to the control unit of the regenerator. This particular embodiment goes beyond ordinary skill in the art and would not be obvious over any references found.

14. Regarding claim 15, Eggleton, Sugaya and Tsushima teach the limitations of claim 13. However, they do not teach a reconfigurable network node, particularly one with a supervisory channel that communicates between the regenerator and the transmitter and uses the receiver or a subsequent regenerator to report the feedback signal to the regenerator. This particular embodiment goes beyond ordinary skill in the art and would not be obvious over any references found.

15. Regarding claim 17, Eggleton, Sugaya and Tsushima teach the limitations of claim 16. However, they do not teach a plurality of optical amplifiers or a feedback signal from a receiver or later regenerator that uses a supervisory signal to transmit back its information to the control unit of the regenerator. This particular embodiment goes beyond ordinary skill in the art and would not be obvious over any references found.

16. Regarding claim 18, Eggleton, Sugaya and Tsushima teach the limitations of claim 16. However, they do not teach a reconfigurable network node, particularly one with a supervisory channel that communicates between the regenerator and the transmitter and uses the receiver or a subsequent regenerator to report the feedback

signal to the regenerator. This particular embodiment goes beyond ordinary skill in the art and would not be obvious over any references found.

17. Regarding claim 20, Eggleton, Sugaya and Tsushima teach the limitations of claim 16. However, they do not teach a reconfigurable network node, particularly one with a supervisory channel that communicates between the regenerator and the transmitter and uses the receiver or a subsequent regenerator to report the feedback signal to the regenerator. This particular embodiment goes beyond ordinary skill in the art and would not be obvious over any references found.

18. Regarding claim 27, and claim 28 by its dependency, Eggleton teaches the limitations of claim 22. However, Eggleton does not teach presetting an optical input power before the nonlinear device whenever a new path is established in a reconfigurable node or that this is done by minimizing the bit error rate at a receiver. This particular embodiment goes beyond ordinary skill in the art and would not be obvious over any references found.

19. Regarding claim 29, and claim 30 by its dependency, Eggleton teaches the limitations of claim 22. However, Eggleton does not teach presetting an optical input power before the nonlinear device whenever a new path is established in a reconfigurable node or that this is done by minimizing the bit error rate at a receiver. This particular embodiment goes beyond ordinary skill in the art and would not be obvious over any references found.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent No. 6,859,307 was considered but there does not appear to be any double patenting issues between this patent and this current application.

21. Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

Commissioner for Patents,
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cody W. Lamb whose telephone number is (571)270-1797. The examiner can normally be reached on Monday - Friday 8 a.m. - 5 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cody W. Lamb/
Examiner, Art Unit 2613
17 April 2008

/Kenneth N Vanderpuye/
Supervisory Patent Examiner, Art Unit 2613